Directorate of
Intelligence

Secret

25X1

Oil and Gas Market: Outlook Through the Mid-1980s

25X1

An Intelligence Assessment

Secret

GI 82-10251
November 1982

Copy 382

Directorate of Intelligence

Secret

25X1

Oil and Gas Market: Outlook Through the Mid-1980s

25X1

An Intelligence Assessment

This assessment was prepared by
of the Office of Global Issues. Comments and queries are welcome and may be addressed to the Chief, Energy Issues Branch, OGI,

25X1
25X1
25X1

Secret
GI 82-10251
November 1982

25X1

Oil and Gas Market: Outlook Through the Mid-1980s

25X1

Key Judgments

Information available as of 29 October 1982 was used in this report.

Almost all petroleum industry projections of oil and natural gas markets through the mid-1980s indicate only moderate growth in consumption, ample supplies, and stable prices. Still, major industrialized countries will remain heavily dependent on imported oil, and West European countries and Japan will become increasingly dependent on imported natural gas:

- Oil consumption will continue to account for about 40 to 50 percent of Free World energy consumption over the next five years. Most forecasts agree that the oil market will remain soft at least through 1985 with the possibility that nominal oil prices could even decline as a result of a combination of lower-than-expected oil demand, an increase in Mexican oil production, and an end to the Iran-Iraq war.

- Natural gas usage in major developed countries is expected to grow slowly during the 1980s and account for about 20 percent of total energy requirements. The bulk of incremental gas usage in Western Europe and Japan will be met through imports, but supplies should be ample in both regions.

All of these forecasts assume a "no surprise" scenario. Recent history has indicated, however, that energy markets are susceptible to unexpected supply disruptions. Although surplus capacity is presently sufficient to handle anything but a major disruption, the gradual increase in consumption expected over the period will make the market increasingly vulnerable to supply disruptions after 1985.

Barring a major disruption, oil and natural gas supplies should be ample to accommodate fairly rapid economic growth over at least the next five years without strong upward pressure on energy prices. Should nominal prices decline, economic recovery would be further stimulated. Such a decline, however, would slow development of alternative fuels, reduce incentives to conserve energy, and could threaten the political and economic well-being of several oil-producing countries.

Continued high levels of dependence on imported oil and natural gas will leave several consuming countries susceptible to pressure from exporting countries. While a soft market will reduce the leverage that energy-producing states can exert on the United States and its allies, any event that causes the energy market to tighten will give producers the opportunity to push their foreign policy objectives on Western Europe and Japan.

25X1

25X1

Oil and Gas Market: Outlook Through the Mid-1980s

25X1

Demand For Oil

Consumption

Based on industry, government, consulting firms, and international organizations' forecasts, we estimate that Free World oil consumption in the late 1980s will approximate 49-50 million barrels per day (b/d)—about 3-4 million b/d above estimated 1982 levels but 3-4 million b/d below peak 1979 levels (table 1). During the next five years, consumption in LDC oil-producing countries is expected to increase while OECD use is expected to remain relatively flat. Although oil as a share of total energy is projected to decline, it will continue to account for 40 to 50 percent of Free World energy requirements throughout the period. Economic growth and oil price trends are key assumptions behind these forecasts.

Key Assumptions

Growth. Growth assumptions are critical in forecasting long-term energy supply and demand. A small change in annual GNP growth can cause a substantial change in energy requirements. Most projections assume a Free World GNP growth of 3 percent annually during the 1980s; OECD countries are expected to grow by 2.7 percent and LDCs by 4 to 5 percent. Even if GNP growth on average approximates these projections over the next several years, the level of demand would still change because of sharp variations in year-to-year growth caused by the business cycle.

Prices. Most forecasts assume flat or declining real oil prices to 1985, with prices rising thereafter by 2 to 3 percent per year. Forecasters are quick to point out that the price path may not be a smooth one. The benchmark OPEC oil price (the Saudi Arabian light crude price) in most forecasts ranges from $30 to $37 per barrel (in 1981 dollars) by 1987.

Table 1
Free World Energy Supply and Demand Projections

Million b/doe

	1980	1985	1990
Total Free World energy consumption	**94**	**102-107**	**116-119**
Free World oil consumption	49	48-52	50-53
OECD	38	35-39	33-38
Rest of Free World	11	13-15	15-18
Free World oil supply	50	48-52	48-53
OECD	15	13-16	12-16
OPEC	28	23-28	23-29
Other LDCs	6	8-9	8-11
Net Communist (imports) exports	1	(1)-1	(2)-1
OPEC oil production capacity			
Maximum sustainable	33-34	30-35	29-41
Available		23-33	27-32
US total energy	**36**	**37-41**	**40-43**
Nonoil consumption	19	21-24	24-28
Oil consumption	17	15-17	15-16
Net (imports) exports			
Oil	(6)	(5)-(8)	(5)-(8)
Gas	(1)	(1)	(1)
Coal	1	1-2	2
Western Europe total energy	**26**	**27-29**	**29-31**
Nonoil consumption	13	14-15	16-19
Oil consumption	13	12-14	11-14
Net (imports) exports			
Oil	(11)	(9)-(10)	(8)-(11)
Gas	(1)	(1)	(1)-(2)
Coal	(1)	(1)-(2)	(2)-(3)
Japan total energy	**7**	**8-10**	**9-13**
Nonoil consumption	2	3-4	4-6
Oil consumption	5	5-7	4-7
Net (imports) exports			
Oil	(5)	(5)-(7)	(4)-(7)
Gas	(1)	(1)	(1)
Coal	(1)	(1)	(2)-(3)

25X1

25X1

25X1

25X1

Supply Factors

Barring an unexpected supply disruption, oil supplies should be ample to meet anticipated demand through at least the late 1980s. Free World oil-productive capacity is expected to average about 56-57 million b/d by the mid-to-late 1980s. If prices weaken over the next few years, however, some erosion in productive capacity is likely.

Non-OPEC

Industry projections indicate non-OPEC productive capacity will approximate 24 million b/d by the mid-to-late 1980s, compared with about 22 million b/d currently. Higher production in Mexico over the next several years will account for the bulk of this increase. Except during periods of unusual weakness in the oil market, non-OPEC producers will be operating at or near capacity.

All forecasts point to a continued decline in net Communist exports to the West. In addition to the level of Soviet oil production (not specified in most of these forecasts), a key factor in determining the level of Communist oil trade is the amount of natural gas that can be used to free oil supplies for export. Even if Soviet oil production stagnates, as most observers expect, exports could be maintained at fairly high levels through natural gas substitution. Under a scenario of high oil prices, it is conceivable that net Communist exports could be higher than 500,000 b/d.

OPEC

Given consumption estimates and non-OPEC supply forecasts, we believe that the demand for OPEC oil will climb from about 20 million b/d in 1982 to about 26 million b/d by the mid-to-late 1980s. As a result the Free World will remain dependent on OPEC oil for about one-half of total oil requirements during the period. Most industry and government forecasts expect OPEC oil-productive capacity to average about 32-33 million b/d during the period, well above expected demand. This assumes that the combined productive capacity of Iran and Iraq returns to 8 million b/d or slightly below pre-Iranian revolution levels.

Risks of Oil Supply Disruptions

Most industry and government forecasters believe that surplus productive capacity should keep the oil market relatively stable over at least the next few years. These "no surprise" scenarios, however, fail to account for the risk of a disruption to oil supplies. Since 1950 oil supplies from major exporting countries have been interrupted on 13 occasions.

25X1

25X1

In most cases, the disruption to supplies had little or no measurable impact on prices. Oil companies were able to switch to alternate sources with relative ease because of the considerable flexibility they maintained in their distribution systems and because of the ample surplus capacity that existed worldwide.

25X1

Three oil supply disruptions, however—all since 1970—have had a significant market impact:

25X1

- Libya's move to reduce foreign company production in 1970, coincident with pipeline sabotage in Syria, resulted in a 25-percent rise in oil prices.
- The 1973 Arab oil embargo supported a tripling of oil prices and contributed to an abrupt curtailment of GNP growth.
- Supply losses resulting from the Iranian revolution contributed to a doubling of oil prices between late 1979 and early 1980.

25X1

The recent escalation in hostilities in the Middle East has heightened fears of potential oil supply disruptions. The region accounts for about two-thirds of Free World oil production and contains numerous production and export facilities vulnerable to damage from war or sabotage.

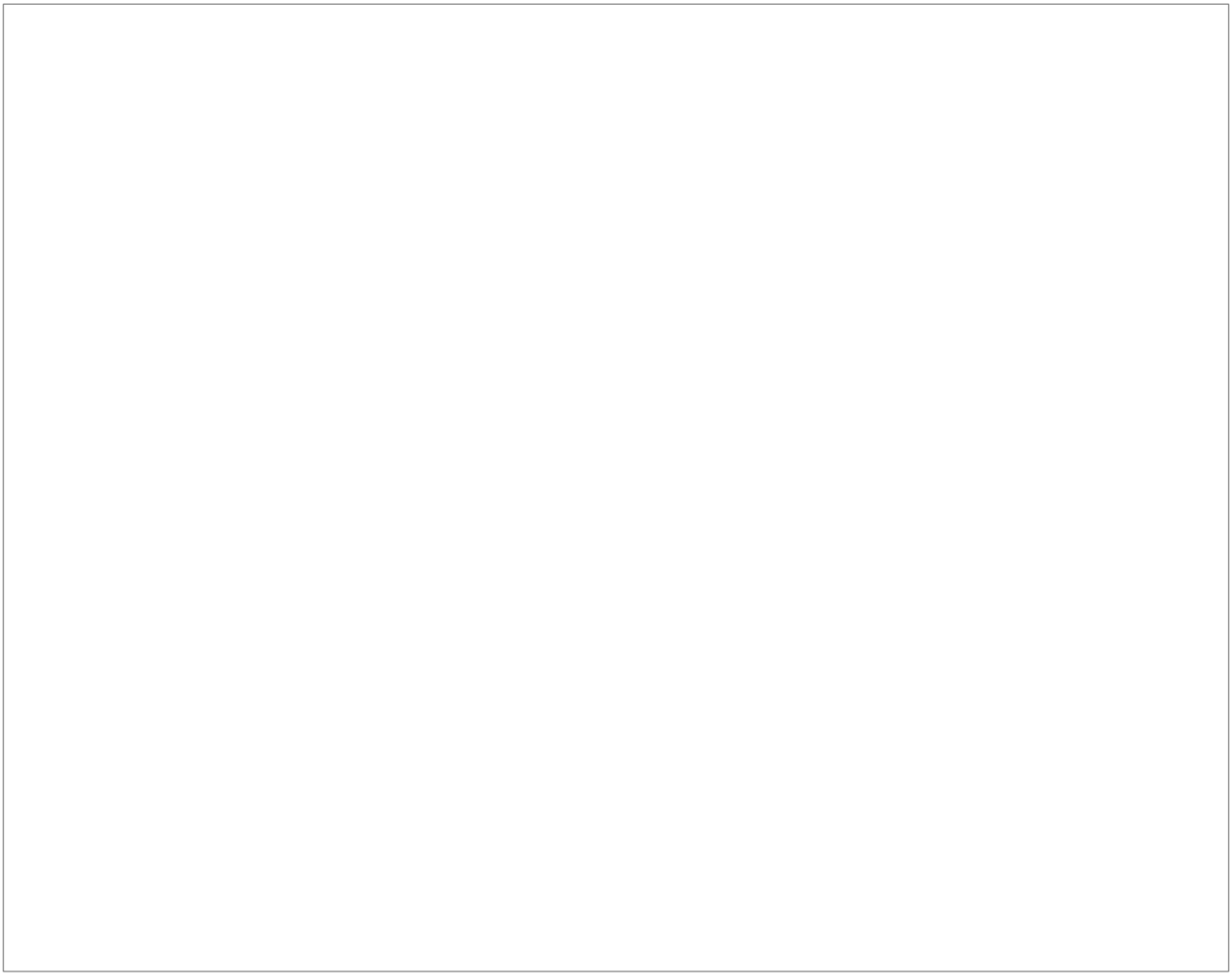
25X1

25X1

Although the odds are against a major internal or external disruption in oil exports in any particular exporting nation or region, the probability of some sort of disruption occurring is quite high. We cannot pinpoint with any accuracy where, when, or how severe such a disruption might be. All things considered, we believe the most secure sources of oil among the developing nations are Mexico, Venezuela, and Indonesia. Saudi Arabia, the United Arab Emirates,

25X1

25X1



and Nigeria would come next, but not necessarily in that order. The least secure sources are Iraq, Iran, and in the near term Kuwait, the latter because of the threat posed by Iran.

Should an oil supply disruption occur, two factors will play a key role in securing additional oil and initially preventing a major price runup: surplus productive capacity and stockpile availability. Surplus oil productive capacity currently totals 10-11 million b/d, an amount sufficient to handle even a moderate supply disruption assuming supplies from Saudi Arabia were not cut off. Given the consensus forecast for consumption and supply availability, excess Free World productive capacity should approximate about 7 million b/d through 1987.

Commercial stocks can be used to offset lost oil supplies. But because costs are involved in holding these stocks, companies probably will not maintain stocks at above-normal levels, given the prospects of a soft market over the next several years. Strategic stockpiles—oil purchased and owned by governments—are located in the United States, Japan, and West Germany. At present there are no specific plans on how to distribute this oil in the event of a crisis.

25X1

25X1

Risks of a Price Collapse

The continuing decline in oil consumption and OPEC's failure to adhere to strict production controls have caused some

25X1

25X1

to predict an imminent collapse in oil prices. These predictions are being given additional credence by the prolonged slump in OECD economic growth, the growing financial problems of several oil-producing nations, particularly Mexico, and rumors of an impending price reduction by Saudi Arabia. A key element sustaining the current price structure has been Riyadh's willingness to cut production sharply.

Sustaining the current OPEC price structure during the next 18 months will depend on the willingness of OPEC members to maintain some form of production sharing. Given the financial strain faced by most oil exporters, there will be considerable pressure to maximize production and exports without regard for the impact on either. We believe the Saudis would shut their eyes to some cheating on the present OPEC production-sharing arrangement but not to wholesale cheating that would leave Riyadh to absorb all the market slack. We also question whether Riyadh would be willing to reduce output simply to accommodate Iran, and possibly Iraq, in the event that the war ends soon.

If Riyadh moves to cut prices, the market could slip completely from Saudi control, especially if Iran and Iraq persisted in boosting sales by the 2 million b/d or so we believe could be achieved over a six-month period. Moreover, with oil prices declining, oil firms would move rapidly to reduce inventories further. In this kind of scenario, we do not know how far oil prices might fall.

25X1

Interrelationship Between Oil and Gas Markets

Oil and natural gas account for about 70 percent of total Free World energy consumption. Because the two fuel sources are directly substitutable in all of the major energy-consuming sectors except transportation, natural gas price movements are closely related to changes in oil prices. In the past, natural gas price increases lagged behind rises in oil prices, but recent changes in gas contract pricing indicate that future movements in gas prices will be more closely linked to oil price changes. Natural gas, however, is not directly substitutable across geographic regions. Indeed, the inflexibility and high cost of gas transport have resulted in the development of three segmented markets—Western Europe, Japan, and North America.

25X1

Western Europe

Because of lower-than-expected demand, most West European gas utilities now have access to gas supplies well in excess of their requirements. In fact, current market conditions have prompted the Soviets to discount gas prices for deliveries to Europe and have forced the Dutch to take measures to boost domestic gas sales to help offset the sharp decline in their gas exports. Current supply agreements cushion West European gas buyers against supply disruptions for the next several years. Over the next five years, even with renewed growth in gas demand, Western Europe should be insulated against all but the most severe gas supply disruptions.

25X1

25X1

According to most industry forecasts, indigenous gas supplies in Western Europe are expected to decline slightly by 1987 while imports may nearly double. The Netherlands, however, will remain Western Europe's largest single supplier of gas and will be Europe's most critical "surge supplier," capable of delivering additional gas in the event of a disruption. Substantial new supplies are expected to come from Algeria via the recently completed Transmediterranean pipeline to Italy. However, gas pricing issues

25X1

must still be resolved before deliveries can begin;

Completion of the Siberian gas pipeline in the mid-1980s will add about 530,000 barrels per day oil equivalency (b/doe) to the Soviet capacity to deliver gas to Western Europe. Roughly 70 percent of the pipeline capacity has already been contracted. The Soviets are anxious to find markets for the remainder of the gas and will probably be willing to offer very favorable pricing terms to Italy, Belgium, or other countries to assure their market share. Given these circumstances, it appears likely that price competition in the European gas market will intensify in the late 1980s.

Japan

On the basis of Japanese Government estimates, demand for natural gas in Japan in the 1980s is likely to grow more rapidly than for any other major fuel. Gas requirements, however, will be substantially less than the Japanese were expecting when they initiated many of their gas supply projects in the mid-1970s. We believe Japan's gas requirements will rise from current levels of 500,000 to 600,000 b/doe to nearly 900,000 b/doe by 1987. This forecast, is roughly 150,000 b/doe below the official Japanese forecast.

The growth in Japanese gas requirements will have to be satisfied by increasing LNG imports. Major suppliers will probably include Indonesia, Abu Dhabi, and Malaysia. Indonesia plans to increase gas supplies by more than 80 percent during the 1983-84 period with the expansion of its LNG facilities at Bontang and Arun. Malaysia plans to begin gas exports in 1985, and additional LNG supplies could be available from the Sakhalin project and from Australia in 1986-87. If all of the LNG projects now under way are completed as scheduled, we believe supplies to Japan will begin to exceed demand in about 1985.

North America

Most industry forecasts indicate that gas usage in North America is expected to decline by about 5 percent over the next five years from current levels of about 10.8 million b/doe. Industry forecasters expect US consumption to decline by more than 10 percent and Canadian gas usage to increase significantly once major pipeline hookups in eastern Canada are completed.

In 1981 the United States imported about 5 percent of its total gas requirements, mostly from Canada and Mexico. Imports from both these countries could be increased moderately in the 1980s if demand conditions warrant. Under present projections, however, ample domestic supplies should forestall the need for major increases in gas imports.

Some Implications

On the Oil Front

Barring an unexpected disruption, oil supplies should be ample to support several years of fairly rapid economic expansion without strong upward price pressures. Indeed, surplus capacity through the mid- to-late 1980s should be sufficient to protect the oil market from all but major supply disruptions. Under these circumstances, oil-exporting countries whose interests are inimical to ours—Libya for example—will not enjoy the financial flexibility experienced during much of the past decade. This ample supply situation should also give the United States a greater degree of freedom in dealing with individual oil-exporting countries than enjoyed in the past.

In the event of an oil price collapse, the United States would face a number of new policy issues, including the question of financial support for some hard-hit oil-exporting countries. Since the borrowing capability of the exporting countries is limited, most of them would require massive financial assistance or face the prospects of very large reductions in imports. To maintain their account deficit at the 1982 level, for example, Nigeria and Venezuela would have to reduce import

25X6
25X1
25X1
25X1
25X1
25X1
25X1
25X1
25X1
25X1

volume by one-third unless special aid were forthcoming. The economic austerity associated with import cuts of such magnitude would almost certainly spark some degree of political instability.

To avoid that kind of austerity, the exporting countries might try another round of oil price cutting to boost export volume, setting off another downward price spiral. International financial stability would obviously be greatly affected. The position of some oil importing countries would improve substantially. The position of other non-OPEC, oil-exporting countries, such as Mexico, Egypt, the United Kingdom, and Norway, would suddenly deteriorate. Countries losing access to OPEC aid would also face hardship (table 3). The bottom line for the system as a whole is uncertain and would depend both on how the situation unfolds and on the flexibility of the international financial community.

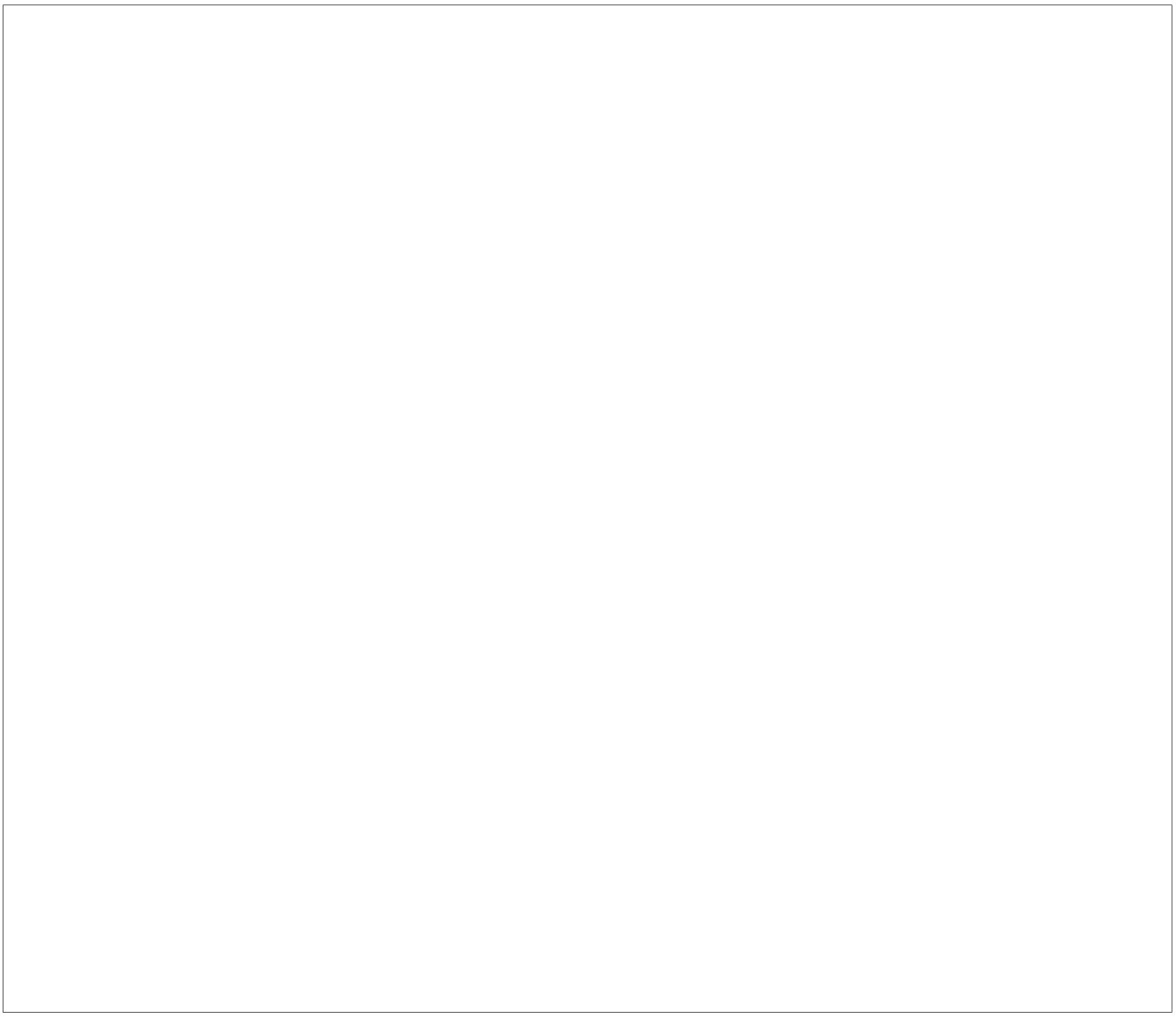
Unsettled conditions in key exporting countries could eventually translate into a supply disruption, perhaps of major proportions. In the event of such an occurrence, exporters would once again be in a position to try to exert leverage, particularly on our import-dependent allies, in an attempt to achieve domestic and/or foreign policy objectives. Our allies' ability to withstand these pressures would depend on their perception of the severity of the disruption and internal political pressures arising from the supply cutoff.

On the Gas Front

Based on expected levels of gas consumption and imports, gas supply disruptions do not appear to pose a major threat to the United States, Japan, or Western Europe in the next five to six years. Beginning in the late 1980s, however, growing dependence on imported gas could pose problems for Western Europe. Although Japan will rely on imports for the bulk of its natural gas needs, increasing fuel switching capability will give the Japanese some measure of protection against gas disruption. US imports, the bulk coming from Mexico and Canada, are expected to be less than 15 percent of total gas needs and less than 3 percent of total energy consumption.

25X6
25X1
25X1
25X1
25X1
25X1

25X1



Even though Japanese gas consumption is expected to more than double, Japan probably could withstand a major supply disruption as long as alternative oil supplies can be obtained. The Japanese electricity generating industry—the principal gas consumer—maintains a significant ability to switch to alternative fuels. Currently 62 percent of LNG-fired capacity can switch to alternative fuels, and by 1990 the utilities will have the capability to cut gas consumption by nearly 40 percent of total gas use. Moreover, by then Japan is expected to be importing LNG from six or seven different sources.

25X1